

Question 1

A technician is troubleshooting a network where it is suspected that a defective node in the network path is causing packets to be dropped. The technician only has the IP address of the end point device and does not have any details of the intermediate devices. What command can the technician use to identify the faulty node?

- **tracert**
- ping
- ipconfig /flushdns
- ipconfig /displaydns

Explanation: The **ping** command is used to verify connectivity to a device, the commands **ipconfig /flushdns** will cause the adapter to flush the DNS cache, while **ipconfig / displaydns** will result in the display of the DNS information in the cache.

Question 2

A user who is unable to connect to the file server contacts the help desk. The helpdesk technician asks the user to ping the IP address of the default gateway that is configured on the workstation. What is the purpose for this *ping* command?

- to obtain a dynamic IP address from the server
- to request that gateway forward the connection request to the file server
- **to test that the host has the capability to reach hosts on other networks**
- to resolve the domain name of the file server to its IP address

Explanation: The **ping** command is used to test connectivity between hosts. The other options describe tasks not performed by **ping**. Pinging the default gateway will test whether the host has the capability to reach hosts on its own network and on other networks.

Question 3

What is a function of the *tracert* command that differs from the *ping* command when they are used on a workstation?

- The **tracert** command reaches the destination faster.
- **The tracert command shows the information of routers in the path.**
- The **tracert** command sends one ICMP message to each hop in the path.
- The **tracert** command is used to test the connectivity between two devices.

Explanation: The **tracert** command sends three pings to each hop (router) in the path toward the destination and displays the domain name and IP address of hops from their responses. Because **tracert** uses the **ping** command, the travel time is the same as a standalone **ping** command. The primary function of a standalone **ping** command is to test the connectivity between two hosts.

Question 4

Which ICMP message is used by the traceroute utility during the process of finding the path between two end hosts?

- redirect
- ping
- **time exceeded**
- destination unreachable

Explanation: **Traceroute** progressively increments the **TTL** (IPv4) or **hop limit** (IPv6) field (1, 2, 3, 4...) for sending sequence of ping commands. When a router senses that the TTL or hop limit is 0, it will discard the packet and send a **time exceeded** message to the source of the **traceroute**. The returned message contains the IP address of the router that discarded the packet. Hence the **traceroute** utility learns the address of the router. This process continues and provides the trace with the address of each hop (router) as the packets continue traveling through routers to reach the destination.

Question 5

Which utility uses the Internet Control Messaging Protocol (ICMP)?

- RIP
- DNS
- **ping**

- NTP

Explanation: ICMP is used by network devices to send error messages.

Question 6

Which protocol is used by IPv4 and IPv6 to provide error messaging?

- **ICMP**
- NDP
- ARP
- DHCP

Explanation: ICMP is used by IPv4 and IPv6 to provide for messages to be sent in the event of certain errors and for informational purposes.

Question 7

A network administrator is testing network connectivity by issuing the ping command on a router. Which symbol will be displayed to indicate that a time expired during the wait for an ICMP echo reply message?

- U
- .
- !
- \$

Explanation: When the **ping** command is issued on a router, the most common indicators are as follows:

! – indicates receipt of an ICMP echo reply message

. – indicates a time expired while waiting for an ICMP echo reply message

U – an ICMP message of unreachability was received

Question 8

Which two things can be determined by using the *ping* command? (Choose two.)

- the number of routers between the source and destination device
- the IP address of the router nearest the destination device
- **the average time it takes a packet to reach the destination and for the response to return to the source**
- **the destination device is reachable through the network**
- the average time it takes each router in the path between source and destination to respond

Explanation: A **ping** command provides feedback on the time between when an echo request was sent to a remote host and when the echo reply was received. This can be a measure of network performance. A successful **ping** also indicates that the destination host was reachable through the network.

Question 9

A user calls to report that a PC cannot access the internet. The network technician asks the user to issue the command **ping 127.0.0.1** in a command prompt window. The user reports that the result is four positive replies. What conclusion can be drawn based on this connectivity test?

- The PC can access the network. The problem exists beyond the local network.
- The IP address obtained from the DHCP server is correct.
- The PC can access the Internet. However, the web browser may not work.
- **The TCP/IP implementation is functional.**

Explanation: The **ping 127.0.0.1** command is used to verify that the TCP/IP stack is functional. It verifies the proper operation of the protocol stack from the network layer to physical layer, without sending a signal on the media. That is, this test does not go beyond the PC itself. For example, it does not detect whether a cable is connected to the PC or not.

Question 10

Which command can be used to test connectivity between two devices using echo request and echo reply messages?

- netstat

- traceroute
- ICMP
- **ping**

Explanation: **Ping** is used to test connectivity between end devices. It can be used with both IPv4 and IPv6. **Ping** uses the ICMP protocol which issues an echo request/echo reply. **Traceroute** is a command used on a router. **Netstat** is used to display the local routing table.

Question 11

What field content is used by ICMPv6 to determine that a packet has expired?

- TTL field
- CRC field
- **Hop Limit field**
- Time Exceeded field

Explanation: ICMPv6 sends a **Time Exceeded** message if the router cannot forward an IPv6 packet because the packet expired. The router uses a hop limit field to determine if the packet has expired, and does not have a TTL field.

Question 12

Which protocol provides feedback from the destination host to the source host about errors in packet delivery?

- ARP
- BOOTP
- DNS
- **ICMP**

Explanation: The **ICMP** protocol operates at **Layer 3** of the **OSI model**, which is the **Internet layer** of the **TCP/IP model**. ICMP encapsulates the **ping** and **traceroute** commands.

Question 13

A network administrator can successfully ping the server at <http://www.cisco.com>, but cannot ping the company web server located at an ISP in another city. Which tool or

command would help identify the specific router where the packet was lost or delayed?

- ipconfig
- netstat
- telnet
- **tracert**

Explanation: The **tracert** command provides connectivity information about the path a packet takes to reach the destination and about every router (hop) along the way. It also indicates how long a packet takes to get from the source to each hop and back.

Question 14

What message is sent by a host to check the uniqueness of an IPv6 address before using that address?

- **neighbor solicitation**
- ARP request
- echo request
- router solicitation

Explanation: In IPv6, **Duplicate Address Detection (DAD)** is used in place of ARP. An IPv6 host performs DAD by sending a **neighbor solicitation (NS)** message to its own IPv6 address to ensure the uniqueness of the address prior to using it.

100%

You have scored **100%**.

Congratulations, you have passed the exam.

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